ANTHER CULTURE IN IONIZING RADIATION AND CHEMOMUTAGENESIS IN BRASSICA JUNCEA L.

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Anther culture is used to generate haploid plants. Its application when combined with mutation induction is useful to create genetic variability in plant breeding. The success of anther culture in gamma irradiated and ethylmethanesulphonate (EMS)/treated plants in B. juncea (2n = 36), was studied. Gamma ray/treated seeds (1300Gy, 1500Gy, and 1700Gy) and EMS treated seeds (0.3%, 0.6% and 0.9%) were grown with untreated check in green house. Cytological studies suggested to use flower buds of 2-3 mm in length for anther extraction. Anthers were cultured in a medium based on Murashige & Skoog (1962), and incubated for 16 hrs light and 8 hrs. dark at 25 ± 1°C. The occurrence of compact callus, friable callus, and embryogenesis were examined 34 days after culture. Induction of compact callus was well observed only with 0.6% EMS (25.3%) while others were below

15%. Induction of friable callus was successful in 0.6% EMS (26.7%), 1300Gy (20.1%), 1500Gy (10.6%), and 1700Gy (31.0%). Embryogenesis was satisfactory in 0.9% EMS (22.5%), 1300Gy (15.5%), and 1700Gy (17.0%). It reveals that ionizing radiation and chemomutagenesis can be used with confidence in anther culture in B. juncea.

* Work done in IAEA Laboratory, Seibersdorf, Austria

References:

Murashige, T.& F. Skoog (1962) A revised medium for rapid growth and bioassays with tobacco tissue culture. Physiol Plantarum 15:473-497.